

ATOMIC ENERGY *newsletter*®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

Dear Sir:

April 12, 1960
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Nuclear Congress and International Atomic Exposition, held last week (Apr. 4-7) in New York, enjoyed attendance record considered best since first of these annual events began in 1955. Exhibitors with laboratory and plant equipment found interest generally high; many took the opportunity to show new equipment for the first time. Some 60 papers on the technical program of the Congress dealt mainly with nuclear production problems; at three sessions of the Society of Automotive Engineers held simultaneously with the Congress, discussions centered on nuclear propelled space and air vehicles, and components for such vehicles and aircraft. The full set of 60 Congress papers may be obtained for \$20, or individual ones for 50¢, from Nuclear Congress, 29 W. 39th St., New York 18, N.Y.

Gains in sales and net income for 1959 have been registered by United States Radium Corp., Morristown, N.J., according to president E. B. Fisher in his annual report to stockholders. Sales for 1959 were \$4,905,751 against \$3,792,804 for the like 1958 period. Net income was \$159,635 or 70¢ a share on the 226,419 common shares outstanding on Dec. 31, 1959. This compared with a net of \$70,326 or 31¢ a share for 1958 after adjustment to reflect the 3-for-1 stock split of Dec. 28, 1959. Gains were recorded throughout the company's entire line which includes radioactive products, dials, panels, nameplates, phosphors and x-ray screens. (Other FINANCIAL NEWS, p.3 this LETTER.)

Uranium exports from Canada for 1959 reached an all-time high of \$311,904,143; this compared with \$276,505,957 for 1958. Of the 11 leading primary mineral exports, uranium was in first place for 1959; aluminum, in second place, showed \$212,287,703 for value of its exports. Largest proportion of the exported uranium went to the United States, under existing contracts between the USAEC and Eldorado Mining & Refining, the Canadian government uranium agency. (Other RAW MATERIAL NEWS, p.5 this LETTER.)

First nuclear powered undersea craft to be built on Gulf Coast, the submarine Sculpin, was launched last fortnight at the yard of Ingalls Shipbuilding Corp., Pascagoula, Miss. Fitting is now underway, with major work presently scheduled on the nuclear power plant, etc. (Other BUSINESS NEWS, p.2 this LETTER.)

Two model RW-300 digital control computers designed by Thompson-Ramo-Wooldridge Products Co., Beverly Hills, Calif. will be supplied for the second commercial nuclear power plant in France. The plant, known as EDF-2, is being constructed near Chinon by Electricite de France, the government electric power utility. The RW-300 computers will be connected to the system for monitoring the radioactivity of the cooling gas. At present, two of the RW-300 computers are being installed in the first French commercial nuclear power plant EDF-1, also at Chinon, France. They are being built in France under license from Thompson-Ramo-Wooldridge by Intertechnique, French electronics and instrumentation company. (Other PRODUCT NEWS, p.4.)

ATOMIC ENERGY BUSINESS NEWS...

NUCLEAR FUELS FIRM FOR ITALY: Italtatom is a new producer of nuclear fuel materials set up in Italy by Montecatini jointly with Anglo-American Corp. of South Africa, and two U. S. concerns: Englehard Industries, Inc., Newark, and Mallinckrodt Chemical Works, St. Louis, Mo. At present, there are no plans for plant to be erected. The market will first be surveyed to gauge demand; capital for a plant has been guaranteed by the backers of Italtatom if normal commercial sources cannot supply it. Stock in the new company is vested 50% in Montecatini, and 16% in each of the other three founders. Italtatom will be managed by Montecatini who will pick the top officials. Technical know-how for Italtatom will be provided by Mallinckrodt. The firm will license production of natural uranium metal and uranium compounds from ore concentrates; fabrication of ceramic shapes from uranium dioxide; and blending of natural and enriched uranium compounds. Engineering drawings, equipment specifications, and processing data will also be supplied by Mallinckrodt to Italtatom.

ORGANIZATIONAL REALIGNMENT BY INDUSTRIAL FIRM: General Electric Co's. electronic, atomic and defense systems group has been renamed the electronic and flight systems group. The group, under C.W. La Pierre, vice-president and group executive, will now include Defense Electronics division, Syracuse, N.Y.; Electronic Components division, Owensboro, Ky.; and Flight Propulsion division and Aircraft Nuclear Propulsion department, both located in Cincinnati, Ohio.

ATOMIC ENERGY PATENT DIGEST...

PATENTS ISSUED March 29, 1960 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:

(1) Charge chutes for atomic reactors. Arthur Shillito, Dennis M. Watts, Kenneth A. Billingham, inventors. No. 2,930,744 assigned to The English Electric Co., Ltd., London, England. (2) Uranium reactor fuel element and process. Benjamin G. Weil, Jerome G. Morse, inventors. No. 2,930,745 assigned to The Martin Co., Middle River, Md. (3) Radioactive battery with solid dielectric spacers and method of manufacture. Harry C. Lieb, inventor. No. 2,930,909 assigned to Leesona Corp.

PATENTS ISSUED March 29, 1960 to GOVERNMENTAL ORGANIZATIONS: (1) Ion sources. Guy Nief, inventor. No. 2,930,917 assigned to Commissariat a l'Energie Atomique, Paris, France. (2) Regeneration of reactor fuel elements. William E. Roake, Ward L. Lyon, inventors. No. 2,930,738 assigned to USAEC.

PATENTS ISSUED April 5, 1960 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:

(1) Process for recovery of lithium hydroxide from lithium phosphates. Lawrence J. Reader, inventor. No. 2,931,703 assigned to Foote Mineral Co., Phila., Pa. (2) Process for preparing zirconium chlorides. Peter R. Giradot, inventor. No. 2,931,705 assigned to Columbia-Southern Chemical Corp. (3) Color radiographs, methods and articles. Bernard M. Fine, inventor. No. 2,931,904 issued to inventor of record. (4) Probe for scintillation meter arrangement. A. Caha, V. Prokes, Brno, Czechoslovakia. No. 2,931,905 issued to inventors of record. (5) Measuring devices using radioactive materials. Desmond W. Molins, Gordon F. Powell, Frederick Pocock, inventors. No. 2,931,906 assigned to Molins Machine Co., Ltd., London, England. (6) Apparatus for the efficient use of ionizing radiation produced by microwave linear accelerators. Davis R. Dewey, John C. Nygard, inventors. No. 2,931,941 assigned to High Voltage Engineering Corp., Cambridge, Mass.

PATENTS ISSUED April 5, 1960 to GOVERNMENTAL ORGANIZATIONS: (1) Radiation detector and method for checking its calibration. Abraham E. Cohen, Martin H. Jachter, inventors. No. 2,931,907 assigned to Secretary of the Army. (2) Scaler. Charles W. Johnstone, inventor. No. 2,931,570 assigned to USAEC. (3) Process for separating plutonium by repeated precipitation with amphoteric hydroxide carriers. Burt F. Faris, inventor. No. 2,931,701 assigned to USAEC. (4) Metathesis of plutonium carrier lanthanum fluoride precipitate with an alkali. Robert B. Duffield, inventor. No. 2,931,702 assigned to USAEC. (5) Preparation of dibasic aluminum nitrate. Alan T. Gresky, Eugene O. Nurmi, Douglas L. Foster, Russell P. Wischow, Jouko E. Savolainen, inventors. No. 2,931,706 assigned to USAEC. (6) Regeneration of reactor fuel elements. Ward L. Lyon, inventor. No. 2,931,721 assigned to USAEC. (7) Neutronic reactor control. Henry Hurwitz, Jr., inventor. No. 2,931,761 assigned to USAEC. (8) Neutronic reactor. Enrico Fermi, inventor. No. 2,931,762 assigned to USAEC. (9) Apparatus for arc welding. John W. Lingafelter, inventor. No. 2,931,889 assigned to USAEC. (10) Electron gun. Nicholas C. Christofilos, Kenneth W. Ehlers, inventors. No. 2,931,939 assigned to USAEC.

ATOMIC ENERGY FINANCIAL NEWS...

FIRM IN NUCLEAR FIELD REPORTS LOSS FOR YEARS OPERATIONS: Vitro Corp. of America, whose efforts to eliminate unprofitable operations have been reported in this LETTER (p. 2, Mar. 1, 1960; p. 5, Mar. 29, 1960) has now reported loss of \$911,411 on total revenues for 1959 of \$60,301,229. The loss was caused by termination of the USAEC's thorium procurement program; by change in emphasis of the government from aircraft to missile work; and by cutbacks in the government titanium programs, the company has explained. Thieblot Aircraft, which had been purchased some years ago from founder-owner Armand J. Thieblot, was liquidated during the year; Vitro Chemical Co., closed one plant; and Vitro Manufacturing Co. was sold to Ferro Corp. These had all been divisions of Vitro Corp., an organization originally set up to work on nuclear engineering; uranium mining and refining; and allied work in the nuclear field. Although the company is still heavily engaged in nuclear activities, a substantial part of its business is also in electronics; missiles; and other government defense activities.

SECONDARY STOCK OFFERING BY URANIUM FIRM: An additional 558,380 shares of common stock will be issued by Uranium Reduction Co., Salt Lake City, Utah, under registration statement filed by the company with Securities and Exchange Commission. Of this lot, some 200,000 are being offered by Mitchell Melich, Uranium Reduction president, four other management officials, and other shareholders. The company now has outstanding 1,830,000 common shares.

OPERATING PROFIT SHOWN BY CANADIAN URANIUM PRODUCER: Operating profit of over \$1 million was shown by Stanrock Uranium Mines during February, 1960, for the best month in its history. Stanrock, in receivership since May, 1959, had some \$29 million in bond issues outstanding at that time. If operations continue at this pace, bond principal and interest may be recovered during the course of Stanrock's contract, according to estimates of officials of Montreal Trust Co., Stanrock's manager in receivership.

IMPROVEMENT SHOWN BY NUCLEAR INSTRUMENT MANUFACTURER: First quarter results for Tracerlab, Inc., Waltham, Mass. manufacturer of nuclear instruments, indicate that it will be the most profitable the company has experienced since the third quarter of 1958. The company's better showing was ascribed by S. S. Auchincloss, president, to the introduction of new products and increased sales efforts. Mr. Auchincloss noted that the firm's backlog now stood at \$4 million, with orders coming in at a "very satisfactory rate". He said it is likely there will a profit for 1960.

STOCK SPLIT BY METALS FIRM: A two-for-one common stock split by Brush Beryllium Co., Cleveland, and an increase in authorized shares from 1.2 million to 2.5 million was voted by stockholders yesterday (April 11). In addition to supplying many segments of the nuclear industry with beryllium fabrications, Brush holds substantial USAEC contracts which provide small but assured company earnings.

ATOMIC ENERGY CONTRACT NEWS...

COMPANY SELECTED TO BUILD NUCLEAR-POWERED GENERATOR FOR SPACE CRAFT:

National Aeronautics and Space Administration (NASA) will start immediate negotiations with Aerojet-General Corp. on the company's proposal to build SNAP-8. This will be a nuclear powered generating system to provide some 30,000 watts of electrical capacity for a space craft. Aerojet, control of which rests with General Tire & Rubber Co., Akron, was selected from among eight companies submitting proposals on the system in answer to the N.A.S.A.'s bidding invitation. Bid requirements were for an initial system weighing 1,500-lbs including reactor and shielding. The SNAP-8 reactor is already under development by Atomics International division of North American Aviation, under a USAEC contract. The Aerojet contract, worth some \$8 million, anticipates a SNAP-8 system which will be ready for flight in about five years.

CONTROL ROD DRIVES TO BE FURNISHED: Twenty-two of twenty-four control rod drives will be supplied by the Atomic Power Equipment department of General Electric Co., San Jose, Calif., for the heavy water components test reactor being constructed at the USAEC's Savannah River Plant, Aiken, S.C. GE has contracted to do this job (on a competitive bid basis) to the design of E. I. du Pont de Nemours & Co., who will operate the reactor for the USAEC. The AFED-supplied mechanisms will consist of 11 of 12 peripheral control rod drives, a cluster of six drives positioned in the center of the core, and five of six safety rod drives.

NEW PRODUCTS, PROCESSES, INSTRUMENTS...

NEW PRODUCTS: Tritium tritride foils are now offered by this producer for use as ionization sources, beta supplies for nuclear batteries, beam targets in neutron generators, and in gas chromatography. They are offered with two types of backing: type 302 stainless steel with thickness of 0.002 in., and copper, type OFHC (oxygen free high conductivity) with thickness of 0.010-in.--United States Radium Corp., Morristown, N.J.

New Model 20613 RCL 256 channel analyzer features pre-selected automatic programming; magnetic tape auxiliary memory; 600-2500 v. high voltage power supply; single push button manual operation; and six modes of readout...Low-cost Geiger-Muller counting system utilizes new decade scaler of this manufacturer featuring five digit direct glow transfer tube readout and 400-1600-v. high voltage power supply. Regulation is said to be 0.5% for plus-or-minus 10% line variation at 1,000-volts.--Radiation Counter Laboratories, Inc., Skokie, Ill.

PRODUCT NEWS: The entire existing inventory of the USAEC in boron-10 materials enriched to 92% in B-10 is being offered by the Commission at a new price schedule on a first-come, first-served basis. No boron-10 materials are being produced at present; price schedule and details of current inventory may be obtained from USAEC, Lockland Aircraft Reactors Operations Office, P.O. Box 23, Lockland Br., Cincinnati 15, Ohio.

Using a radioisotope as a source, a density altimeter developed by Boeing Aircraft for missiles and jet aircraft measures radioactive backscatter, proportional to atmospheric density. Four major units make up the device: probe, radioactive source, detector and electronic circuits. The company claims the altimeter can provide dial readings accurate to within 500-ft. or less at altitudes above 25,000-ft.

Price of n-butyllithium has been cut by Lithium Corp. of America to \$12 per lb. in 500-lb. lots, shipped as a 22% solution in commercial heptane. Old price was \$18.50 per lb. Increased production to meet demand, now larger through growing use as catalyst, has brought price down. (Company had formerly been major supplier to the USAEC for the Commission's lithium-6 program, now terminated.)

PROCESSES: Now being used by Anaconda Uranium (div. of the Anaconda Co.) at Grants, N. M. is an injection well for the disposal of radioactive wastes. In this first such installation in the U. S. for radioactive wastes, some 400 gal. per minute of contaminated process material may be injected into underground formations at a depth of 1,780-ft.

The possibility of using a new spray calcining technique to concentrate large volumes of radioactive liquid wastes into smaller volumes of powder or solids was outlined last week by B. M. Johnson of General Electric Co. at a Nuclear Congress session in New York. Current tests, conducted with a simulated waste solution, use a 10-ft. long section of an 8-in. diameter tube heated to 1600 deg. F. with low-voltage current; the simulated waste solution is sprayed into this tube. It is believed the process may be scaled up successfully and used for Hanford's output of high-level wastes.

MANUFACTURERS' NEWS: An intense ion source for acceleration and injection of hydrogen ions into the DCX thermonuclear machine at Oak Ridge National Laboratory will be furnished by High Voltage Engineering Corp., Burlington, Mass., under the company's recent development contract. The source is to be capable of producing over 25 ma of mass-analyzed single-ionized molecular hydrogen. It is expected that this device will be the prototype for sources operating in the 100 ma range.

Two large helium blowers for the USAEC's experimental gas-cooled reactor at Oak Ridge will be designed and furnished by Joy Manufacturing Co., Pittsburgh, under subcontract to H. K. Ferguson Co., prime construction contractor for the reactor. The blowers, each driven by 3,000 hp motors, will drive some 215,000 lbs. per hour of helium through the primary coolant system. The experimental gas-cooled reactor, estimated to cost \$30 million, will be a combined experimental and power-producing reactor. Its design provides facilities for testing gas-cooled reactor materials, fuels and coolants while at the same time producing about 22,000 net electrical kilowatts.

RAW MATERIALS...prospecting, mining, marketing...

UNITED STATES: An amended uranium concentrate purchase contract between the USAEC and Phillips Petroleum Co., provides for a "stretch-out" of a portion of pre-1962 production to the 1962-1966 period from Phillip's uranium processing mill at Ambrosia Lake, near Grants, N.M. Some 1 million pounds of uranium oxide will be deferred to the 1962-1966 period.

CANADA: The undelivered portion of the uranium contract held by Lorado Uranium Mines has been sold to Eldorado Mining & Refining, Ltd., the Canadian government-owned company operating uranium mines at Beaverlodge Lake, N. Saskatchewan. Deliveries amounting to approximately 4 million-lbs of uranium oxide are involved. At Eldorado's normal rate, this would be about 20-months of normal operation. Its original mine at Great Bear Lake is expected to close this Fall.

NEW BOOKS & OTHER PUBLICATIONS...

Nuclear Fusion. William P. Allis, editor. One of the three volumes of this publisher drawing on the papers of the second Geneva Conference in 1958 and presenting the most significant ideas on fusion of these papers; editor of the series is James G. Beckerley. 488 pages.--D. Van Nostrand Co., Princeton, N.J. (\$12.50).

Chemistry of Nuclear Power. J. K. Dawson, G. Long. A broad review for the general scientific reader. 208 pages.--Newnes Scientific Publications, London. (30s)

Energy Production and Fusion Products from a Thermonuclear Plasma. Report of work by W. R. Faust and A. D. Anderson at Naval Research Laboratory, Washington, D. C. 38 pages. No. PB-151851. (\$1.00).....Recent Results in Plasma Physics Research. Investigations by A. C. Kolb and W. R. Faust at Naval Research Laboratory, Washington, D.C. 25 pages. No. PB-151934. (75¢).....Effects of Nuclear Radiation on Magnetic and Ferroelectric Materials and Quartz. Report of Air Force sponsored research by Stanford Research Institute. 24 pages. No. PB-161115. (75¢).....

Radioisotopes at Work for Agriculture. Report on the subject by Stanford Research. 200 pages. No. SRIA-9. (\$3.50).....Radioisotopes in Medicine. Report by Sanford Research. No. SRIA-13. (\$3.00).....Fundamental Investigations of Electrical Power Sources; Vol. 2, Batteries. Survey of performance characteristics, structure, power-weight ratios, and power-volume ratios of the so-called nuclear batteries using energy emitted by decay products of radioactive nuclei; chemical batteries; and fuel cells. Work done by E. J. Hellund of Plasmadyne Corp., under Air Force contract. 97 pages. No. PB-161262. (\$2.25). -- Office of Technical Services, Wash. 25, D.C.

Radioisotopes in Science and Industry. Summary of the USAEC's isotopes development program. (\$1.25).....Uranium Mining Practices and Costs at Ten Salt Wash Lease Operations of Union Carbide Nuclear Co. Report by W. L. Dare on small-scale operations of the Salt Wash miner. Bureau of Mines report no. 7922. (60¢)--Sup't of Documents, Wash. 25, D.C.

Field Beta-Gamma Dose-Rate Meter. Work by Frank A. Devlin at Naval Radiological Defense Laboratory, San Francisco. 14 pages. No. PB-144396. (Microfilm, \$2.40; photostat, \$3.30).....Electron Linear Accelerator Laboratory. Report by Mark J. Jakobson of research during 1958 with linear accelerator at Montana State University. No. PB-144443. 9 pages. (Microfilm, \$1.80; photostat, \$1.80).....Research on Growing of Cadmium Sulfide Crystals for Dosimeter Purposes. Investigations by J. E. Powderly and K. E. Bean, Eagle-Pitcher Research Laboratories, Miami, Okla. 50 pages. No. PB-137661. (Microfilm \$3.30; photostat, \$7.80).....Survival in Fallout Areas. Report by Harold E. Shaw, Army Chemical Warfare Laboratories. 39 pages. No. PB-143739. (Microfilm \$3.00; photostat \$6.30) -- Library of Congress, Wash. 25, D.C.

Radiation Control for Fire and Other Emergency Forces. Protective procedures in situations involving radioactivity; with case histories. Useful handbook for fire departments, private fire brigades, and other emergency forces. 256 pages. National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass. (\$4.75)

NOTES: Complete proceedings of the Second Geneva Conference are now available in 33 volumes, including an index, from the United Nations' publication office, New York, or UN sales agencies.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

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